IEC | IECEE CB SCHEME

Ref. Certif. No.

JPTUV-019264

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product Produit	LCD Monitor
Name and address of the applicant Nom et adresse du demandeur	Lite-On Technology Corp. 5 Floor, 90, Chien 1 Road Chung Ho, Taipei Hsien 235 Taiwan
Name and address of the manufacturer Nom et adresse du fabricant	Acer Computer (Shanghai) Limited. 3F No.168 Xizang Medium Road Huangpu District, Shanghai, P.R. China
Name and address of the factory Nom et adresse de l'usine	See additional page(s)
Rating and principal characteristics Valeurs nominales et caractéristiques principales	AC 100-240V; 50/60Hz; 1.1A; Class I
Trade mark (if any) Marque de fabrique (si elle existe)	acer
Model/type Ref. Ref. de type	P193W****, P191W****, ADAA, X193W****, ADA9 (* can be 0-9, A-Z or blank)
Additional information (if necessary) Information complementaire (si nécessaire)	For model differences, refer to the test report.
A sample of the product was tested and found to be in conformity with Un echantillon de ce produit a été essayé et a été considéré conforme a la	IEC 60950-1:2001 National differences see test report
As shown in the Test Report Ref. No.which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce Certificat	11010447 001

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜV **TÜV Rheinland Group**

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Date: 05.06.2007

Signature: Dipl.-Ing. F. Stoelzel

1. Lite-On Computer Technology
   (Dong Guan) Co., Ltd.
   N. San Heng Rd.,Heng Jiao Ind. Zone
   Xi Chen Zone, Shi Jie Town
   Dongguan, Guangdong, P.R. China

2. Dongguan shijie yuanli
   electronics factory
   Heng Jiao Ind. Zone
   Shi Jie Town, Dong Guan City
   Guang Dong Province, P.R. China

Additional information (if necessary)
Information complémentaire (si nécessaire)

Date: 05.06.2007

Signature:

Dipl.-Ing. F. Stoelzel

TEST REPORT

IEC 60950-1 and/or EN 60950-1

Information technology equipment – Safety – Part 1: General requirements

Report reference No	11010447 001
Tested by (printed name and signature)	John W.H. Chuang
Approved by (printed name and signature)	Simon Yu
Date of issue	June 04, 2007
Testing Laboratory Name	TÜV Rheinland Taiwan, Taichung Laboratory
Address	10F, No. 219, Min-Chuan Road, Taichung 403, Taiwan
Testing location	CBTL ☒ CCATL ☐ SMT ☐ TMP ☐
Address	Same as above
Applicant's Name	Lite-On Technology Corp.
Address	5 Floor, 90, Chien 1 Road, Chung Ho, Taipei Hsien 235 Taiwan
Test specification	
Standard	IEC 60950-1:2001 EN 60950-1:2001 + A11:2004
Test procedure	CB-scheme
Non-standard test method	N/A
Test Report Form No	IECEN60950_1B
TRF originator	SGS Fimko Ltd
Master TRF	dated 2003-03

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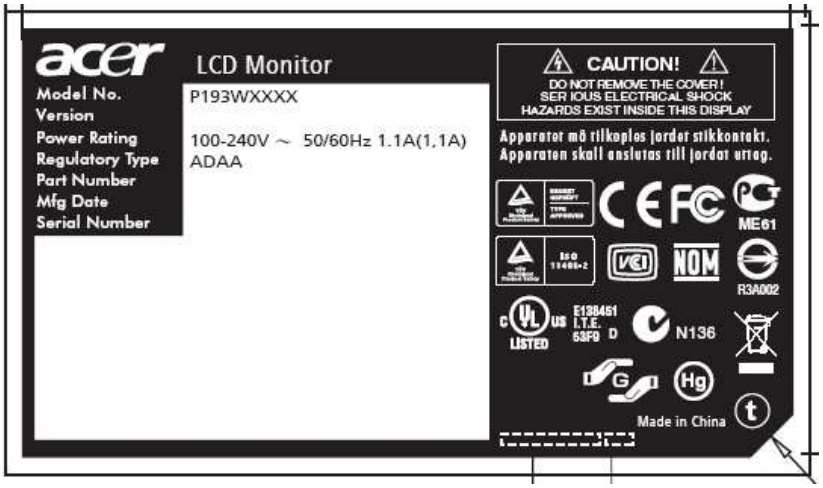
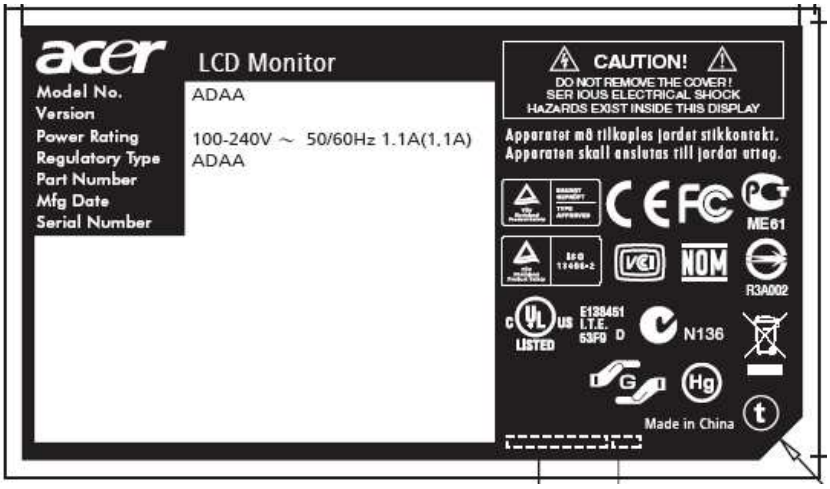
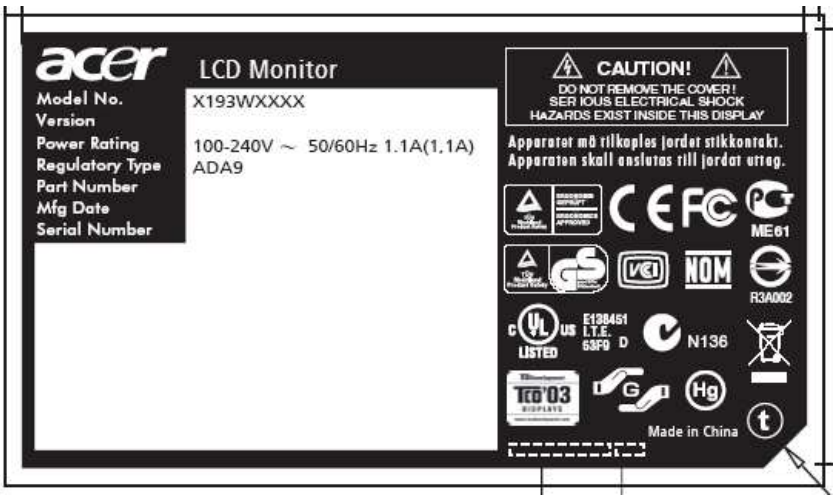
Test item description	LCD Monitor
Trademark	acer
Manufacturer	Acer Computer (Shanghai) Limited. 3F, No. 168 Xizang Medium Road, Huangpu District, Shanghai, P. R. China
Model and/or type reference	P193W****, P191W****, ADAA, X193W****, ADA9 (* can be 0-9, A-Z or blank)
Serial number	Pre-production samples without serial numbers
Rating(s)	100-240V~, 50/60Hz, 1.1A

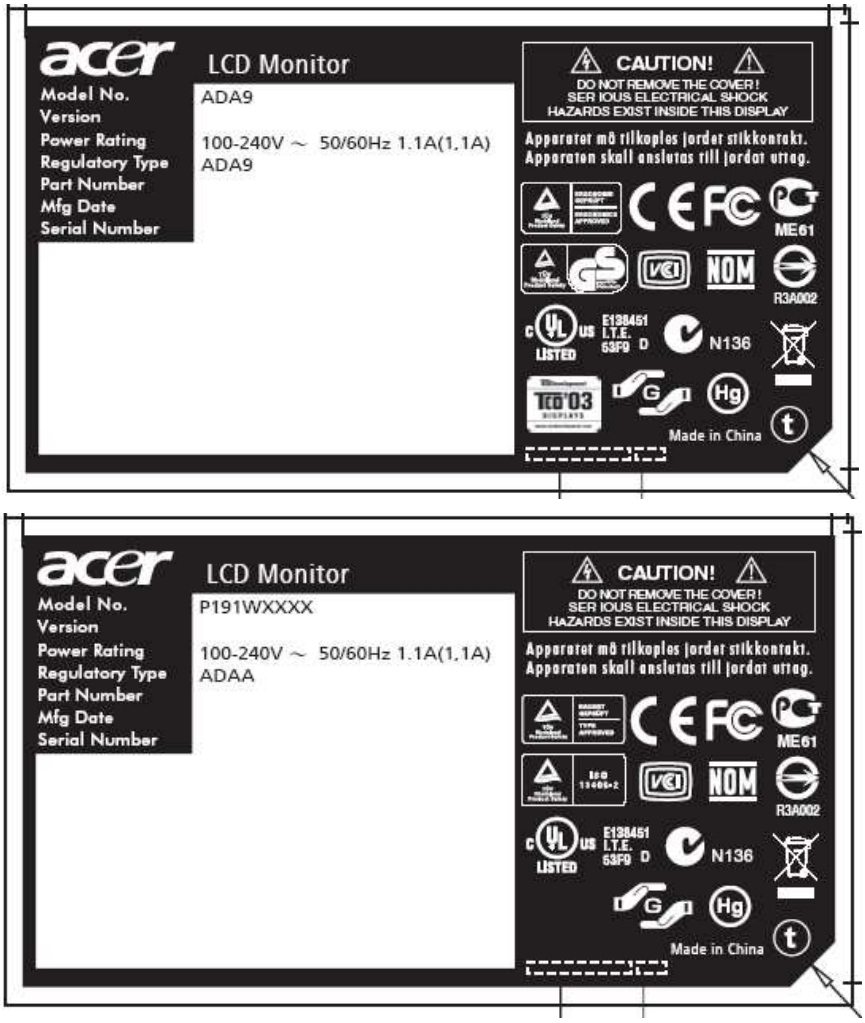
Copy of marking plate:







Copy of marking plate:



Summary of testing:

- The manufacture specified the max. ambient temperature as +40°C.
- The load condition used as below during testing:
  This equipment operated under max. brightness and contrast of LCD backlight circuit.
- This equipment complied with stability test (sub-clause 4.1).
- The output +5.25Vdc and +22Vdc of built-in switching power supply with DC/AC inverter board was evaluated and complied with limit power source test (sub-clause 2.5).
- The internal metal enclosure was considered and compliance with the electrical, mechinical and fire enclosure requirement.
- Unless otherwise specific, all test were performed on model P193W**** to represent other similar models.

Particulars: test item vs. test requirements

Equipment mobility .....: Movable equipment
Operating condition .....: Continuous
Mains supply tolerance (%) .....: ±10%
Tested for IT power systems .....: Yes
IT testing, phase-phase voltage (V) .....: 230V (for Norway)
Class of equipment .....: Class I
Mass of equipment (kg).....: 5.58
Protection against ingress of water .....: IPX0

Test case verdicts

Test case does not apply to the test object ..: N/A
Test item does meet the requirement .....: P(ass)
Test item does not meet the requirement ....: F(ail)

Testing

Date of receipt of test item .....: May, 2007
Date(s) of performance of test .....: May – June, 2007

General remarks

"This report is not valid as a CB Test Report unless appended by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02".

The test result presented in this report relate only to the object(s) tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

Comments:

Summary of compliance with National Differences (for explanation of codes see below):
EU Group Differences, EU Special National Conditions, EU A-Deviations, AR, AT, AU, BE, CH, CN, CZ, DE, DK, FI, FR, GB, GR, HU, IL, IN, IT, KE, KR, MY, NL, NO, PL, SE, SG, SI, SK.

AR=Argentina, AT=Austria, AU=Australia, BE=Belgium, CA=Canada, CH=Switzerland, CN=China, CZ=Czech Republic, DE=Germany, DK=Denmark, FI=Finland, FR=France, GB=United Kingdom, GR=Greece, HU=Hungary, IL=Israel, IN=India, IT=Italy, KE=Kenya, KR=Korea, MY=Malaysia, NL=The Netherlands, NO=Norway, PL=Poland, SE=Sweden, SG=Singapore, SI=Slovenia, SK=Slovakia, US=United States of America.

For National Differences see end of this test report.

Factories:

1) Lite-On Computer Technology (Dong Guan) Co., Ltd.
N. San Heng Rd., Heng Jiao Ind. Zone, Xi Chen Zone, Shi Jie Town, Dongguan, Guangdong, P.R. China
2) Dongguan shijie yuanli electronics factory
Heng Jiao Ind. Zone, Shi Jie Town, Dong Guan City, Guang Dong Province, P.R. China

Definition of variables:

Variable:	Range of variable:	Content:

*	0-9, A-Z or blank	Marketing purpose only, no technical difference

General product information:

The equipment models P193W**** P191W****, ADAA, X193W****, ADA9 (* can be 0-9, A-Z or blank) are 19” LCD Monitor for the use in information technology equipment.

All models are identical except for model designation.

This equipment consists with following critical components:

- TFT LCD panel module
- Metal enclosure (inside of the plastic enclosure, covering switching power supply with DC/AC inverter board and function control board) (refer to appended table 1.5.1 for details)
- Building-in type switching power supply with DC/AC inverter board (refer to appended table 1.5.1 for details)
- Secondary function control board (as main board, SELV circuit, with D-sub and DVI port)
- Plastic enclosure (refer to appended table 1.5.1 for details)
- Key control board (as SELV circuits)

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1	GENERAL		**P**
1.5	Components		**P**
1.5.1	General	See below.	**P**
	Comply with IEC 60950 or relevant component standard	(see appended table 1.5.1)	**P**
1.5.2	Evaluation and testing of components	Components, which were certified to IEC and/or national standards, are used correctly within their ratings or had been evaluated during this approval.	**P**
1.5.3	Thermal controls	No thermal controls provided.	**N/A**
1.5.4	Transformers	Transformer used is suitable for the intended application and complies with the relevant requirements of the standard and particularly with those of Annex C.	**P**
1.5.5	Interconnecting cables	Interconnection cable provided with the equipment is carrying only SELV on energy level below 240VA. Except the insulation materials there are no further requirements for the interconnection cables.	**N/A**
1.5.6	Capacitors in primary circuits .....:	Between lines: X2 sub-class capacitor according to IEC 60384-14:1993 with 21 days damp heat test. Between Line/Neutral to earth: Y2 or Y1 sub-class capacitor according to IEC 60384-14:1993.	**P**
1.5.7	Double insulation or reinforced insulation bridged by components	No such components used.	**N/A**
1.5.7.1	General	See above.	**N/A**
1.5.7.2	Bridging capacitors	See above.	**N/A**
1.5.7.3	Bridging resistors	See above.	**N/A**
1.5.7.4	Accessible parts		**N/A**
1.5.8	Components in equipment for IT power systems	Y1 or Y2 subclass capacitors according to IEC 60384-14:1993 provided between phase and earth are rated 250Vac min.	**P**
1.6	Power interface		**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.6.1	AC power distribution systems	TN power system considered. IT power system for Norway.	**P**
1.6.2	Input current	(see appended table 1.6.2 for test result)	**P**
1.6.3	Voltage limit of hand-held equipment	This appliance is not a hand-held equipment.	**N/A**
1.6.4	Neutral conductor	The neutral is not identified in the equipment. Basic insulation for rated voltage between earthed parts and primary phases.	**P**

1.7	Marking and instructions		**P**
1.7.1	Power rating	See below.	**P**
	Rated voltage(s) or voltage range(s) (V) .....:	100-240	**P**
	Symbol for nature of supply, for d.c. only .....:	AC mains only.	**N/A**
	Rated frequency or rated frequency range (Hz) ..:	50/60	**P**
	Rated current (mA or A) .....:	1.1	**P**
	Manufacturer's name or trademark or identification mark .....:	Manufacturer: Acer Computer (Shanghai) Limited. Trademark: acer	**P**
	Type/model or type reference.....:	P193W****, P191W****, ADAA, X193W****, ADA9 (* can be 0-9, A-Z or blank)	**P**
	Symbol for Class II equipment only .....:	Class I equipment.	**N/A**
	Other symbols .....:	Other symbols do not give rise to misunderstanding.	**P**
	Certification marks .....:	See copy of the marking plates.	**N/A**
1.7.2	Safety instructions	User's manual provided.	**P**
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	**N/A**
1.7.4	Supply voltage adjustment .....:	Full range circuit design.	**N/A**
	Methods and means of adjustment; reference to installation instructions .....:	No such supply voltage adjustment.	**N/A**
1.7.5	Power outlets on the equipment .....:	No standard power outlets provided.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....:	Fuse marking label adjacent to the fuse holder on PCB: F801 T3.15AH 250V CAUTION: FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE REPLACE ONLY TYPE WITH SAME TYPE AND RATINGS OF FUSE.	**P**
1.7.7	Wiring terminals	See below.	**P**
1.7.7.1	Protective earthing and bonding terminals .....:	Appliance inlet is provided. The symbol of 60417-1-IEC-5019 was located on PCB.	**P**
1.7.7.2	Terminal for a.c. mains supply conductors	The equipment is provided with appliance inlet, which is for connection of a detachable type power supply cord.	**N/A**
1.7.7.3	Terminals for d.c. mains supply conductors	No such conductors.	**N/A**
1.7.8	Controls and indicators	See below.	**P**
1.7.8.1	Identification, location and marking .....:	The marking and indication of the stand-by switch is located that indication of function is clearly.	**P**
1.7.8.2	Colours .....:	The colours of the Power LED indicator are as follows: - Blue for ON condition - Amber for power saving mode	**P**
1.7.8.3	Symbols according to IEC 60417 .....:	Marking according 60417-1-IEC- 5009 (line half inside circle) provided above the stand-by switch.	**P**
1.7.8.4	Markings using figures .....:	No indicators for different positions of control.	**N/A**
1.7.9	Isolation of multiple power sources .....:	Single power source only.	**N/A**
1.7.10	IT power distribution systems	For Norway compliance has to be evaluated during the national approved.	**N/A**
1.7.11	Thermostats and other regulating devices	Neither thermostats nor other regulating devices provided.	**N/A**
1.7.12	Language(s) .....:	User's manual provided in English and German. Marking label provided in English. Versions in other languages will be provided during national approval.	—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.13	Durability	The marking plate was subjected to the permanence of marking test. The marking plate was rubbed with cloth soaked with water for 15s and then again for 15s with the cloth soaked with petroleum spirit. After this test there was no damage to the marking. The marking on the label did not fade. There was no curling of the marking.	**P**
1.7.14	Removable parts	No removable parts provided.	**N/A**
1.7.15	Replaceable batteries	No batteries provided.	**N/A**
	Language(s).....:		—
1.7.16	Operator access with a tool .....:	There are no any operator accessible areas with a tool defined.	**N/A**
1.7.17	Equipment for restricted access locations .....:	No restricted access locations.	**N/A**

2	PROTECTION FROM HAZARDS		**P**
2.1	Protection from electric shock and energy hazards		**P**
2.1.1	Protection in operator access areas	No hazard in operator accessible areas.	**P**
2.1.1.1	Access to energized parts	See sub clause 2.1.1	**P**
	Test by inspection .....:	No access with test finger to any parts with only basic insulation to hazardous voltage. The test pin cannot touch hazardous voltage parts through any seams/openings of the metal enclosure.	**P**
	Test with test finger .....:	See above.	**P**
	Test with test pin .....:	See above.	**P**
	Test with test probe .....:	No TNV circuit.	**N/A**
2.1.1.2	Battery compartments .....:	No battery compartments provided.	**N/A**
2.1.1.3	Access to ELV wiring	No ELV wiring in operator access area.	**N/A**
	Working voltage (Vpeak or Vrms); minimum distance (mm) through insulation		—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage circuit in operator access area.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.1.1.5	Energy hazards .....:	No energy hazard in operator access area.	**P**
2.1.1.6	Manual controls	No conductive shafts of operating knobs and handles.	**N/A**
2.1.1.7	Discharge of capacitors in equipment	No risk of electric shock.	**P**
	Time-constant (s); measured voltage (V).....:	(See appended table)	—
2.1.2	Protection in service access areas	No maintenance works in operation mode necessary.	**N/A**
2.1.3	Protection in restricted access locations	The unit is not limited to be used in restricted access locations.	**N/A**
2.2	SELV circuits		**P**
2.2.1	General requirements	See below.	**P**
2.2.2	Voltages under normal conditions (V) .....:	Between any conductor of the SELV circuits, 42.4Vpeak or 60Vd.c. are not exceeded. Result see appended table 2.2.2.	**P**
2.2.3	Voltages under fault conditions (V).....:	Single fault did not cause excessive voltage in SELV circuits. The limits of 71Vpeak and 120Vd.c. were not exceed. Furthermore, the SELV limits (see sub clause 2.2.2) were not exceeded for longer than 0.2 seconds. Results see appended tables 2.2.2 and 2.2.3.	**P**
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)	Method 1 used.	**P**
2.2.3.2	Separation by earthed screen (method 2)	Used for C802 and C832 trace.	**P**
2.2.3.3	Protection by earthing of the SELV circuit (method 3)		**N/A**
2.2.4	Connection of SELV circuits to other circuits.....:	See sub clause 2.2.2, 2.2.3. and 2.4.3.	**P**
2.3	TNV circuits		**N/A**
2.3.1	Limits		**N/A**
	Type of TNV circuits .....:		—
2.3.2	Separation from other circuits and from accessible parts		**N/A**
	Insulation employed.....:		—
2.3.3	Separation from hazardous voltages		**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Insulation employed.....:		—
2.3.4	Connection of TNV circuits to other circuits		**N/A**
	Insulation employed.....:		—
2.3.5	Test for operating voltages generated externally		**N/A**
2.4	Limited current circuits		**P**
2.4.1	General requirements	Considered for output of DC/AC inverter.	**P**
2.4.2	Limit values	See appended table 2.4.2.	**P**
	Frequency (Hz).....:	See appended table 2.4.2.	—
	Measured current (mA).....:	The peak drop voltage was measured with an oscilloscope at a 2kΩ non-inductive resistor. Results see appended table 2.4.2.	—
	Measured voltage (V) .....:	970V	—
	Measured capacitance (μF).....:	10pF	—
2.4.3	Connection of limited current circuits to other circuits	Complies.	**P**
2.5	Limited power sources *+5.25Vdc and +22Vdc output of switching power supply with DC/AC inverter board were complied with L.P.S test requirement.*		**P**
	Inherently limited output		**N/A**
	Impedance limited output		**N/A**
	Overcurrent protective device limited output		**N/A**
	Regulating network limited output under normal operating and single fault condition	Output of +5.25Vdc and +22Vdc of switching power supply with DC/AC inverter board (connect to main board) were complied with L.P.S test. See appended table for test result.	**P**
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		**N/A**
	Output voltage (V), output current (A), apparent power (VA).....:	Results see appended table 2.5.	—
	Current rating of overcurrent protective device (A)		—
2.6	Provisions for earthing and bonding		**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.6.1	Protective earthing	Appliance inlet directly connects to PCB (by solder pin) and also with screw reliable connection to metal enclosure.	**P**
2.6.2	Functional earthing	Secondary functional earthing is separated to primary by double or reinforce insulation or by basic insulation and protective earthing. No green/yellow wire used at secondary.	**P**
2.6.3	Protective earthing and protective bonding conductors	See below.	**P**
2.6.3.1	General	No power supply cord provided. See sub clause 2.6.3.4.	**P**
2.6.3.2	Size of protective earthing conductors	No power cord provided.	**N/A**
	Rated current (A), cross-sectional area (mm^2), AWG .....:		—
2.6.3.3	Size of protective bonding conductors	Evaluation by test. Rated current below 16A.	**N/A**
	Rated current (A), cross-sectional area (mm^2), AWG .....:		—
2.6.3.4	Resistance (Ω) of earthing conductors and their terminations, test current (A) .....:	(Refer to appended table 2.6.3.4).	**P**
2.6.3.5	Colour of insulation .....:	No green/yellow wire used.	**N/A**
2.6.4	Terminals	See below.	**P**
2.6.4.1	General	See sub clause 2.6.1.	**P**
2.6.4.2	Protective earthing and bonding terminals	The earth terminal of appliance inlet is considered as the protective earthing terminal and was evaluated by sub clause 2.6.3.4.	**P**
	Rated current (A), type and nominal thread diameter (mm) .....:	Evaluation by test. Rated current below 16A.	—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors	Only protective earthing conductor used in this equipment.	**N/A**
2.6.5	Integrity of protective earthing	See below.	**P**
2.6.5.1	Interconnection of equipment	This unit has it's own earthing connection. Any other units connected via the output shall be provided SELV only.	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	No switch or overcurrent protective device in protective earthing conductor.	**P**
2.6.5.3	Disconnection of protective earth	Appliance inlet provided as disconnection device disconnect at one point in the unit.	**P**
2.6.5.4	Parts that can be removed by an operator	Plug or inlet, the earth connection is made before and broken after the hazardous voltage. No other operator removable parts.	**P**
2.6.5.5	Parts removed during servicing	It is not necessary to disconnect the earth connection except for the removing of the earthed part itself.	**P**
2.6.5.6	Corrosion resistance	All safety earthing connections in compliance with Annex J.	**P**
2.6.5.7	Screws for protective bonding	Only ISO thread screw used in metal enclosure for protective bonding. Metal thickness at least twice the pitch of the screw. No self-tapping or spaced thread screws used.	**P**
2.6.5.8	Reliance on telecommunication network or cable distribution system	No TNV circuits provided.	**N/A**
2.7	Overcurrent and earth fault protection in primary circuits		**P**
2.7.1	Basic requirements	Equipment relies on fuse or circuit breaker of the wall outlet installation protection of the building installation in regard to L to N short circuit and earth fault. Over current protection is provided by one built-in fuse.	**P**
	Instructions when protection relies on building installation	Pluggable equipment type A.	**N/A**
2.7.2	Faults not covered in 5.3	The protection devices are well dimensioned and mounted.	**P**
2.7.3	Short-circuit backup protection	Pluggable equipment type A, the building installation is considered as providing short circuit backup protection.	**P**
2.7.4	Number and location of protective devices .....:	One built-in fuse provided on the mains conductor.	**P**
2.7.5	Protection by several devices	One fuse provided.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.7.6	Warning to service personnel.....:	No service work necessary.	**N/A**
2.8	Safety interlocks		**N/A**
2.8.1	General principles		**N/A**
2.8.2	Protection requirements		**N/A**
2.8.3	Inadvertent reactivation		**N/A**
2.8.4	Fail-safe operation		**N/A**
2.8.5	Moving parts		**N/A**
2.8.6	Overriding		**N/A**
2.8.7	Switches and relays		**N/A**
2.8.7.1	Contact gaps (mm) .....:		**N/A**
2.8.7.2	Overload test		**N/A**
2.8.7.3	Endurance test		**N/A**
2.8.7.4	Electric strength test		**N/A**
2.8.8	Mechanical actuators		**N/A**
2.9	Electrical insulation		**P**
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic materials are not used.	**P**
2.9.2	Humidity conditioning	Carried out for 120 hrs.	**P**
	Humidity (%) .....:	95% R.H.	—
	Temperature (°C) .....:	40°C	—
2.9.3	Grade of insulation	Adequate levels of safety insulation were provided and maintained to comply with the requirements of this standard.	**P**
2.10	Clearances, creepage distances and distances through insulation		**P**
2.10.1	General	See below.	**P**
2.10.2	Determination of working voltage	The rms and the peak voltages were measured for the unit. The unit was connected to a 240V TN power system. Results see appended table 2.10.2.	**P**
2.10.3	Clearances	See below, Annex G was not considered.	**P**

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Clause	Requirement – Test	Result – Remark	Verdict
2.10.3.1	General	Annex F and minimum clearances considered.	**P**
2.10.3.2	Clearances in primary circuits	(see appended table 2.10.3 and 2.10.4)	**P**
2.10.3.3	Clearances in secondary circuits	See sub clause 5.3.4.	**N/A**
2.10.3.4	Measurement of transient voltage levels	Normal transient voltage considered (overvoltage category II for primary circuits).	**N/A**
2.10.4	Creepage distances	(see appended table 2.10.3 and 2.10.4)	**P**
	CTI tests .....:	CTI rating for all materials of min. 100.	—
2.10.5	Solid insulation	See below.	**P**
2.10.5.1	Minimum distance through insulation	(see appended table 2.10.5)	**P**
2.10.5.2	Thin sheet material	The thin sheet materials of polyester tape used in transformer T802.	**P**
	Number of layers (pcs) .....:	3 layers.	—
	Electric strength test	(see appended table 5.2)	—
2.10.5.3	Printed boards		**N/A**
	Distance through insulation		**N/A**
	Electric strength test for thin sheet insulating material		—
	Number of layers (pcs) .....:		**N/A**
2.10.5.4	Wound components		**N/A**
	Number of layers (pcs) .....:		**N/A**
	Two wires in contact inside wound component; angle between 45° and 90° .....:		**N/A**
2.10.6	Coated printed boards	No coated printed boards.	**N/A**
2.10.6.1	General		**N/A**
2.10.6.2	Sample preparation and preliminary inspection		**N/A**
2.10.6.3	Thermal cycling		**N/A**
2.10.6.4	Thermal ageing (°C) .....:		**N/A**
2.10.6.5	Electric strength test		—
2.10.6.6	Abrasion resistance test		**N/A**
	Electric strength test		—
2.10.7	Enclosed and sealed parts .....:	No hermetically sealed components.	**N/A**
	Temperature T1=T2 + Tma – Tamb +10K (°C)....:		**N/A**

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Clause	Requirement – Test	Result – Remark	Verdict
2.10.8	Spacings filled by insulating compound.....:	Certified sources of optical isolators used. No other components applied for. (see appended table 2.10.5).	**P**
	Electric strength test	See above.	—
2.10.9	Component external terminations	See appended table 1.5.1, 2.10.3 and 2.10.4.	**P**
2.10.10	Insulation with varying dimensions	No reduction of distance applied.	**N/A**
3	WIRING, CONNECTIONS AND SUPPLY		**P**
3.1	General		**P**
3.1.1	Current rating and overcurrent protection	All internal wires are UL recognized wiring, which is PVC insulated, rated VW-1, min. 80°C. Internal wiring gauge is suitable for current intended to be carried.	**P**
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges and heatsinks, which could damage the insulation.	**P**
3.1.3	Securing of internal wiring	Internal wires are secured by solder, cable tie or other mechenical connect so that a loosening of the terminal connection is unlikely.	**P**
3.1.4	Insulation of conductors	The insulation of the individual conductors is suitable for the application and the working voltage. For the insulation material see 3.1.1.	**P**
3.1.5	Beads and ceramic insulators	Not used.	**N/A**
3.1.6	Screws for electrical contact pressure	Electrical and earthing connections screwed two or more complete threads into metal. No screws of insulating material for electrical and earthing connections.	**P**
3.1.7	Insulating materials in electrical connections	To ensure proper earth connection through the PCB, screws and spring-washers are provided to compensate possible shrinkage of the PCB material.	**P**
3.1.8	Self-tapping and spaced thread screws	No self-tapping or spaced thread screws used.	**N/A**

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Clause	Requirement – Test	Result – Remark	Verdict
3.1.9	Termination of conductors	All conductors are reliable secured.	**P**
	10 N pull test	Complied.	**P**
3.1.10	Sleeving on wiring	No sleeving used as supplementary insulation function.	**N/A**

3.2	Connection to an a.c. mains supply or a d.c. mains supply		**P**
3.2.1	Means of connection .....:	See below.	**P**
3.2.1.1	Connection to an a.c. mains supply	Appliance inlet used.	**P**
3.2.1.2	Connection to a d.c. mains supply		**N/A**
3.2.2	Multiple supply connections	Only one AC mains supply connection.	**N/A**
3.2.3	Permanently connected equipment	Not permanently connected equipment.	**N/A**
	Number of conductors, diameter (mm) of cable and conduits .....:		—
3.2.4	Appliance inlets	The appliance inlet complies with IEC 60320-1. The power cord can be inserted without difficulties and does not support the unit.	**P**
3.2.5	Power supply cords	Not provided.	**N/A**
3.2.5.1	AC power supply cords	See above.	**N/A**
	Type.....:		—
	Rated current (A), cross-sectional area (mm^2), AWG.....:		—
3.2.5.2	DC power supply cords	Not connect to DC mains.	**N/A**
3.2.6	Cord anchorages and strain relief	No non-detachable power supply cords provided.	**N/A**
	Mass of equipment (kg), pull (N) .....:		—
	Longitudinal displacement (mm) .....:		—
3.2.7	Protection against mechanical damage	No parts under this unit likely to damage the power supply cords. Enclosure without sharp edges.	**P**
3.2.8	Cord guards	No cord guard provided.	**N/A**
	D (mm); test mass (g) .....:		—
	Radius of curvature of cord (mm).....:		—
3.2.9	Supply wiring space	Not permanently connected and without non-detachable power supply cord.	**N/A**

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Clause	Requirement – Test	Result – Remark	Verdict
3.3	Wiring terminals for connection of external conductors *Neither permanently connected nor non-detachable equipment.*		**N/A**
3.3.1	Wiring terminals		**N/A**
3.3.2	Connection of non-detachable power supply cords		**N/A**
3.3.3	Screw terminals		**N/A**
3.3.4	Conductor sizes to be connected		**N/A**
	Rated current (A), cord/cable type, cross-sectional area (mm2) .....:		—
3.3.5	Wiring terminal sizes		**N/A**
	Rated current (A), type and nominal thread diameter (mm) .....:		—
3.3.6	Wiring terminals design		**N/A**
3.3.7	Grouping of wiring terminals		**N/A**
3.3.8	Stranded wire		**N/A**
3.4	Disconnection from the mains supply		**P**
3.4.1	General requirement	See below.	**P**
3.4.2	Disconnect devices	Appliance inlet used as disconnect divice.	**P**
3.4.3	Permanently connected equipment	Not permanently connected equipment.	**N/A**
3.4.4	Parts which remain energized	When the power cord is removed from the inlet no remaining parts with hazardous voltage in the equipment.	**P**
3.4.5	Switches in flexible cords	No power supply cords provided.	**N/A**
3.4.6	Single-phase equipment and d.c. equipment	Both poles are disconnected simultaneously.	**P**
3.4.7	Three-phase equipment	Single-phase equipment.	**N/A**
3.4.8	Switches as disconnect devices	No switch provided.	**N/A**
3.4.9	Plugs as disconnect devices	See sub clause 3.4.2.	**N/A**
3.4.10	Interconnected equipment	Interconnection of the power supply to the other PCBs in the equipment by secondary output cable only.	**N/A**
3.4.11	Multiple power sources	Only one supply connection provided.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.5	Interconnection of equipment		**P**
3.5.1	General requirements	See below.	**P**
3.5.2	Types of interconnection circuits .....:	Interconnection circuits of SELV through the connector.	**P**
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection.	**N/A**
4	PHYSICAL REQUIREMENTS		**P**
4.1	Stability		**P**
	Angle of 10°	The equipment does not overbalance when tilted to 10 degrees.	**P**
	Test: force (N).....:	Equipment is not a floor standing unit.	**N/A**
4.2	Mechanical strength		**P**
4.2.1	General	See below. After the tests, the equipment complies with the requirements of sub-clauses 2.1.1, 2.6.1 and 2.10.	**P**
4.2.2	Steady force test, 10 N	10N applied to components other than parts serving as an enclosure.	**P**
4.2.3	Steady force test, 30 N		**N/A**
4.2.4	Steady force test, 250 N	250N applied to internal metal enclosure at top, side, bottom and rear. No energy or other hazards.	**P**
4.2.5	Impact test	No hazard as result from steel ball impact test for metal enclosure.	**P**
	Fall test	See above.	**P**
	Swing test	See above.	**P**
4.2.6	Drop test		**N/A**
4.2.7	Stress relief test	The internal metal enclosure considered as fire, electrical and mechenical enclosure and no energy hazard in operator access area. Complied with sub-clause 2.1.1, 2.6.1 and 2.10.	**N/A**
4.2.8	Cathode ray tubes	No CRT provided.	**N/A**
	Picture tube separately certified .....:		**N/A**

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Clause	Requirement – Test	Result – Remark	Verdict
4.2.9	High pressure lamps	No high pressure lamps provided.	**N/A**
4.2.10	Wall or ceiling mounted equipment; force (N) .....:		**N/A**
4.3	Design and construction		**P**
4.3.1	Edges and corners	The edges and corners are rounded and smoothed.	**P**
4.3.2	Handles and manual controls; force (N).....:	None, which could cause hazards.	**N/A**
4.3.3	Adjustable controls	No safety relevant adjustable controls provided.	**N/A**
4.3.4	Securing of parts	Electrical and mechanical connections can be expected to withstand usual mechanical stress. No loosening of clearance or creepage impairing distances likely to occur.	**P**
4.3.5	Connection of plugs and sockets	No mismatch of connectors, plugs or socket possible.	**P**
4.3.6	Direct plug-in equipment	Not direct plug-in type.	**N/A**
	Dimensions (mm) of mains plug for direct plug-in :		**N/A**
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N).....:		**N/A**
4.3.7	Heating elements in earthed equipment	No heating elements.	**N/A**
4.3.8	Batteries	No batteries provided.	**N/A**
4.3.9	Oil and grease	No oil or grease inside the equipment.	**N/A**
4.3.10	Dust, powders, liquids and gases	Equipment intended use not considered to be exposed to these.	**N/A**
4.3.11	Containers for liquids or gases	No container for liquid or gas.	**N/A**
4.3.12	Flammable liquids.....:	No flammable liquid.	**N/A**
	Quantity of liquid (l).....:		**N/A**
	Flash point (°C).....:		**N/A**
4.3.13	Radiation; type of radiation .....:	See below.	**P**
4.3.13.1	General	No radiation is generated inside the equipment. The energy of the indicator LED is far below the limit for Class 1 LED products.	**N/A**
4.3.13.2	Ionizing radiation		**N/A**

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Clause	Requirement – Test	Result – Remark	Verdict
	Measured radiation (pA/kg) .....:		—
	Measured high-voltage (kV) .....:		—
	Measured focus voltage (kV) .....:		—
	CRT markings .....:		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		**N/A**
	Part, property, retention after test, flammability classification .....:		**N/A**
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....:		**N/A**
4.3.13.5	Laser (including LEDs)	No laser presents. LED power is far below LED Class 1 limit.	**P**
	Laser class .....:	See above.	—
4.3.13.6	Other types .....:	Not used.	**N/A**

4.4	Protection against hazardous moving parts		**N/A**
4.4.1	General		**N/A**
4.4.2	Protection in operator access areas		**N/A**
4.4.3	Protection in restricted access locations		**N/A**
4.4.4	Protection in service access areas		**N/A**

4.5	Thermal requirements		**P**
4.5.1	Maximum temperatures	(see appended table 4.5.1)	**P**
	Normal load condition per Annex L.....:	Considered.	**P**
4.5.2	Resistance to abnormal heat	Phenolic materials used where parts at hazardous voltage are directly mounted on. Phenolic is accepted without further testing. For other material test result, refer to appended table 4.5.2.	**P**

4.6	Openings in enclosures		**P**
4.6.1	Top and side openings	See below.	**P**
	Dimensions (mm) .....:	(see appended table)	—
4.6.2	Bottoms of fire enclosures	See below.	**P**
	Construction of the bottom .....:	(see appended table)	—
4.6.3	Doors or covers in fire enclosures	No doors or covers provided.	**N/A**
4.6.4	Openings in transportable equipment	Equipment not transportable type.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.6.5	Adhesives for constructional purposes	No adhesives used.	**N/A**
	Conditioning temperature (°C)/time (weeks) .....:		—
4.7	Resistance to fire		**P**
4.7.1	Reducing the risk of ignition and spread of flame	See below.	**P**
	Method 1, selection and application of components wiring and materials	Materials with suitable flammability classes are used.	**P**
	Method 2, application of all of simulated fault condition tests	Not used.	**N/A**
4.7.2	Conditions for a fire enclosure	See below.	**P**
4.7.2.1	Parts requiring a fire enclosure	Fire enclosure is required if at least one of the following is provided: ● components in primary ● components in secondary (not supplied by LPS) ● insulated wiring Fire enclosure (internal metal enclosure was considered as fire enclosure) is required.	**P**
4.7.2.2	Parts not requiring a fire enclosure	The fire enclosure is not required for the circuits (supplied by LPS and mounted on PCB material of flammability rating V-1) which outside the power supply with DC/AC inverter board. The outer plastic enclosure used HB plastic material.	**P**
4.7.3	Materials		**P**
4.7.3.1	General	PCB rated accordingly. For details see table 1.5.1.	**P**
4.7.3.2	Materials for fire enclosures	Internal metal enclosure was considered as fire enclosure.	**P**
4.7.3.3	Materials for components and other parts outside fire enclosures	Base stand and plastic enclosure outside of fire enclosure used material rated HB or better.	**P**
4.7.3.4	Materials for components and other parts inside fire enclosures	Internal components except small parts are V-2 or better.	**P**
4.7.3.5	Materials for air filter assemblies	No air filters provided.	**N/A**
4.7.3.6	Materials used in high-voltage components	No high voltage components provided.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		**P**
5.1	Touch current and protective conductor current		**P**
5.1.1	General	See sub-clauses 5.1.2 to 5.1.6.	**P**
5.1.2	Equipment under test (EUT)	EUT has only one mains connection.	**P**
5.1.3	Test circuit	Equipment of figure 5A used.	**P**
5.1.4	Application of measuring instrument	See appended table 5.1.6.	**P**
5.1.5	Test procedure	The touch current was measured from mains to earthed metal enclosure, earthed output connector and plastic enclosures with metal foil.	**P**
5.1.6	Test measurements	See appended table 5.1.6.	**P**
	Test voltage (V) .....:	See above.	—
	Measured touch current (mA) .....:	See above.	—
	Max. allowed touch current (mA) .....:	See above.	—
	Measured protective conductor current (mA) .....:		—
	Max. allowed protective conductor current (mA) .:		—
5.1.7	Equipment with touch current exceeding 3.5 mA :	Touch current does not exceed 3.5mA.	**N/A**
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks	No TNV circuit connection.	**N/A**
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system	No TNV circuit connection.	**N/A**
	Test voltage (V) .....:		—
	Measured touch current (mA) .....:		—
	Max. allowed touch current (mA) .....:		—
5.1.8.2	Summation of touch currents from telecommunication networks .....:	No TNV circuit connection.	**N/A**
5.2	Electric strength		**P**
5.2.1	General	(see appended table 5.2)	**P**
5.2.2	Test procedure	(see appended table 5.2)	**P**
5.3	Abnormal operating and fault conditions		**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.3.1	Protection against overload and abnormal operation	See below.	**P**
5.3.2	Motors	No motors used.	**N/A**
5.3.3	Transformers	With the overload and shorted output of the transformer, no high temperature of the transformer was recorded. Results of the overload and short-circuit tests see appended table 5.3 and Annex C.	**P**
5.3.4	Functional insulation.....:	Method c). Test results see appended table 5.3.	**P**
5.3.5	Electromechanical components	No electromechanical component provided.	**N/A**
5.3.6	Simulation of faults	Ventilation blocked: Results see appended table. Short and open circuit test for power supply board. Result see appended table.	**P**
5.3.7	Unattended equipment	None of the listed components was provided.	**N/A**
5.3.8	Compliance criteria for abnormal operating and fault conditions	No fire occurs. No molten metal was emitted. Electric strength tests primary to secondary and primary to earth passed.	**P**

6	CONNECTION TO TELECOMMUNICATION NETWORKS		**N/A**
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		**N/A**
6.1.1	Protection from hazardous voltages		**N/A**
6.1.2	Separation of the telecommunication network from earth		**N/A**
6.1.2.1	Requirements		**N/A**
	Test voltage (V) .....:		—
	Current in the test circuit (mA) .....:		—
6.1.2.2	Exclusions.....:		**N/A**

6.2	Protection of equipment users from overvoltages on telecommunication networks		**N/A**
6.2.1	Separation requirements		**N/A**
6.2.2	Electric strength test procedure		**N/A**
6.2.2.1	Impulse test		**N/A**
6.2.2.2	Steady-state test		**N/A**

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Clause	Requirement – Test	Result – Remark	Verdict
6.2.2.3	Compliance criteria		**N/A**
6.3	Protection of the telecommunication wiring system from overheating		**N/A**
	Max. output current (A) ..... :		—
	Current limiting method ..... :		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		**N/A**
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		**N/A**
7.2	Protection of equipment users from overvoltages on the cable distribution system		**N/A**
7.3	Insulation between primary circuits and cable distribution systems		**N/A**
7.3.1	General		**N/A**
7.3.2	Voltage surge test		**N/A**
7.3.3	Impulse test		**N/A**
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		**N/A**
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		**N/A**
A.1.1	Samples ..... :		—
	Wall thickness (mm) ..... :		—
A.1.2	Conditioning of samples; temperature (°C) ..... :		**N/A**
A.1.3	Mounting of samples ..... :		**N/A**
A.1.4	Test flame (see IEC 60695-11-3)		**N/A**
	Flame A, B, C or D ..... :		—
A.1.5	Test procedure		**N/A**
A.1.6	Compliance criteria		**N/A**
	Sample 1 burning time (s) ..... :		—
	Sample 2 burning time (s) ..... :		—
	Sample 3 burning time (s) ..... :		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		**N/A**
A.2.1	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
A.2.2	Conditioning of samples		**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
A.2.3	Mounting of samples .....:		**N/A**
A.2.4	Test flame (see IEC 60695-11-4)		**N/A**
	Flame A, B or C .....:		—
A.2.5	Test procedure		**N/A**
A.2.6	Compliance criteria		**N/A**
	Sample 1 burning time (s) .....:		—
	Sample 2 burning time (s) .....:		—
	Sample 3 burning time (s) .....:		—
A.2.7	Alternative test acc. to IEC 60695-2-2, cl. 4 and 8		**N/A**
	Sample 1 burning time (s) .....:		—
	Sample 2 burning time (s) .....:		—
	Sample 3 burning time (s) .....:		—
A.3	Hot flaming oil test (see 4.6.2)		**N/A**
A.3.1	Mounting of samples		**N/A**
A.3.2	Test procedure		**N/A**
A.3.3	Compliance criterion		**N/A**

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		**N/A**
B.1	General requirements		**N/A**
	Position .....:		—
	Manufacturer .....:		—
	Type .....:		—
	Rated values .....:		—
B.2	Test conditions		**N/A**
B.3	Maximum temperatures		**N/A**
B.4	Running overload test		**N/A**
B.5	Locked-rotor overload test		**N/A**
	Test duration (days) .....:		—
	Electric strength test: test voltage (V) .....:		—
B.6	Running overload test for d.c. motors in secondary circuits		**N/A**
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		**N/A**
B.7.1	Test procedure		**N/A**
B.7.2	Alternative test procedure; test time (h).....:		**N/A**
B.7.3	Electric strength test		**N/A**

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Clause	Requirement – Test	Result – Remark	Verdict
B.8	Test for motors with capacitors		**N/A**
B.9	Test for three-phase motors		**N/A**
B.10	Test for series motors		**N/A**
	Operating voltage (V) .....:		—
C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		**P**
	Position .....:	(see appended table C.2)	—
	Manufacturer .....:	(see appended table C.2)	—
	Type .....:	(see appended table C.2)	—
	Rated values .....:	Class B	—
	Method of protection.....:	By the circuit design.	—
C.1	Overload test	(see appended table 5.3)	**P**
C.2	Insulation	(see appended table C.2)	**P**
	Protection from displacement of windings.....:	(see appended table C.2)	**P**
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		**P**
D.1	Measuring instrument	See sub clause 5.1.3 and 5.1.4	**P**
D.2	Alternative measuring instrument		**N/A**
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		**N/A**
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)		**P**
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		**N/A**
G.1	Summary of the procedure for determining minimum clearances		**N/A**
G.2	Determination of mains transient voltage (V) .....:		**N/A**
G.2.1	AC mains supply		**N/A**
G.2.2	DC mains supply		**N/A**
G.3	Determination of telecommunication network transient voltage (V).....:		**N/A**
G.4	Determination of required withstand voltage (V)...:		**N/A**
G.5	Measurement of transient levels (V).....:		**N/A**
G.6	Determination of minimum clearances .....:		**N/A**

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Clause	Requirement – Test	Result – Remark	Verdict
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		**N/A**
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		**P**
	Metal used .....:	Complied.	—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		**N/A**
K.1	Making and breaking capacity		**N/A**
K.2	Thermostat reliability; operating voltage (V) .....:		**N/A**
K.3	Thermostat endurance test; operating voltage (V) .....:		**N/A**
K.4	Temperature limiter endurance; operating voltage (V) .....:		**N/A**
K.5	Thermal cut-out reliability		**N/A**
K.6	Stability of operation		**N/A**
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)		**P**
L.1	Typewriters		**N/A**
L.2	Adding machines and cash registers		**N/A**
L.3	Erasers		**N/A**
L.4	Pencil sharpeners		**N/A**
L.5	Duplicators and copy machines		**N/A**
L.6	Motor-operated files		**N/A**
L.7	Other business equipment	See sub clause 1.6.2.	**P**
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		**N/A**
M.1	Introduction		**N/A**
M.2	Method A		**N/A**
M.3	Method B		**N/A**
M.3.1	Ringing signal		**N/A**
M.3.1.1	Frequency (Hz) .....:		—
M.3.1.2	Voltage (V) .....:		—
M.3.1.3	Cadence; time (s), voltage (V) .....:		—
M.3.1.4	Single fault current (mA).....:		—
M.3.2	Tripping device and monitoring voltage.....:		**N/A**
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		**N/A**

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Clause	Requirement – Test	Result – Remark	Verdict
M.3.2.2	Tripping device		**N/A**
M.3.2.3	Monitoring voltage (V).....:		**N/A**
N	ANNEX N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)		**N/A**
N.1	ITU-T impulse test generators		**N/A**
N.2	IEC 60065 impulse test generator		**N/A**
P	ANNEX P, NORMATIVE REFERENCES		**P**
Q	ANNEX Q, BIBLIOGRAPHY		**P**
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		**N/A**
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6)		**N/A**
R.2	Reduced clearances (see 2.10.3)		**N/A**
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		**N/A**
S.1	Test equipment		**N/A**
S.2	Test procedure		**N/A**
S.3	Examples of waveforms during impulse testing		**N/A**
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		**N/A**
			—
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		**N/A**
			—
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		**P**
V.1	Introduction	See below.	**P**
V.2	TN power distribution systems	Single-phase TN power system considered and used for testing.	**P**
V.3	TT power systems	Not considered.	**N/A**
V.4	IT power systems	IT power system for Norway.	**P**

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Clause	Requirement – Test	Result – Remark	Verdict

W	ANNEX W, SUMMATION OF TOUCH CURRENTS		**N/A**
W.1	Touch current from electronic circuits		**N/A**
W.1.2	Earthed circuits		**N/A**
W.2	Interconnection of several equipments		**N/A**
W.2.1	Isolation		**N/A**
W.2.2	Common return, isolated from earth		**N/A**
W.2.3	Common return, connected to protective earth		**N/A**

X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		**N/A**
X.1	Determination of maximum input current		**N/A**
X.2	Overload test procedure		**N/A**

Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		**N/A**
Y.1	Test apparatus .....:		**N/A**
Y.2	Mounting of test samples .....:		**N/A**
Y.3	Carbon-arc light-exposure apparatus .....:		**N/A**
Y.4	Xenon-arc light exposure apparatus .....:		**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
CENELEC COMMON MODIFICATIONS [C], SPECIAL NATIONAL CONDITIONS [S] AND A-DEVIATIONS (NATIONAL DEVIATIONS) [A] (EN 60950-1:2001, Annex ZB and Annex ZC)			**P**
General	C: Delete all the "country" notes in the reference document according to the following list: 1.1.5 Note 2 1.5.8 Note 2 1.6.1 Note 1.7.2 Note 4 1.7.12 Note 2 2.6 Note 2.2.3 Note 2.2.4 Note 2.3.2 Note 2, 7, 8 2.3.3 Note 1, 2 2.3.4 Note 2,3 2.7.1 Note 2.10.3.1 Note 4 3.2.1.1 Note 3.2.3 Note 1, 2 3.2.5.1 Note 2 4.3.6 Note 1,2 4.7.2.2 Note 4.7.3.1 Note 2 6.1.2.1 Note 6.1.2.2 Note 6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note 7 Note 4 7.1 Note G2.1 Note 1, 2 Annex H Note 2	Deleted.	**P**
1.2.4.1	S (DK): Certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.	No power supply cord provided.	**N/A**
1.5.1	A (SE, Ordinance 1990:944 and CH, Ordinance on environmentally hazardous substances SR 814.013, Annex 3.2, Mercury): Add NOTE – Switches containing mercury such as thermostats, relays and level controllers are not allowed.	No such switches used.	**N/A**
1.5.8	S (NO): Due to the IT power system used (see annex V, Fig. V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	Considered.	**P**
1.7.2	S (FI, NO, SE): CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows:	Should be evaluated during national approval.	**N/A**
	FI: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"	See above.	**N/A**
	NO: "Apparatet må tilkoples jordet stikkontakt"	See above.	**N/A**
	SE: "Apparaten skall anslutas till jordat uttag"	See above.	**N/A**
	A (DK, Heavy Current Regulations): Supply cords of class I equipment, which is delivered without a plug, must be provided with a visible tag with the following text: Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket eller	See above.	**N/A**

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Clause	Requirement – Test	Result – Remark	Verdict
	If essential for the safety of the equipment, the tag must in addition be provided with a diagram which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende instalationsvejledning."		
1.7.5	S (DK): Socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For stationary equipment the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.	No socket-outlets provided.	**N/A**
1.7.5	A (DK, Heavy Current Regulations): CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.	Class I equipment.	**N/A**
1.7.12	A (DE, Gesetz über technische Arbeitsmittel (Gerätesicherheitsgesetz) [Law on technical labour equipment {Equipment safety law}], of 23rd October 1992, Article 3, 3rd paragraph, 2nd sentence, together with the "Allgemeine Verwaltungsvorschrift zur Durchführung des Zweiten Abschnitts des Gerätesicherheitsgesetzes" [General administrative regulation on the execution of the Second Section of the Equipment safety law], of 10th January 1996, article 2, 4th paragraph item 2): Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labour equipment, also for imported technical labour equipment shall be written in the German language. NOTE: Of this requirement, rules for use even only by service personnel are not exempted.	Should be evaluated during national approval.	**N/A**
1.7.15	A (CH, Ordinance on environmentally hazardous substances SR 814.013): Annex 4.10 of SR 814.013 applies for batteries.	No battries provided.	**N/A**
	A (DE, Regulation on protection against hazards by X-ray, of 8th January 1987, Article 5 [Operation of X-ray emission source], clauses 1 to 4): a) A licence is required by those who operate an X-ray emission source. b) A licence in accordance with Cl. 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV if 1) the local dose rate at a distance of 0,1 m from the surface does not exceed 1 µSv/h and 2) it is adequately indicated on the X-ray emission source that i) X-rays are generated and	This national difference was deleted by A11 of EN 60950-1.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer. c) A licence in accordance with Cl. 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV if 1) the X-ray emission source has been granted a type approval and 2) it is adequately indicated on the X-ray emission source that i) X-rays are generated ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local dose rate in accordance with the type approval is not exceeded and iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer. d) Furthermore, a licence in accordance with Cl. 1 is also not required by persons who operate X-ray emission sources on which the electron acceleration voltage does not exceed 30 kV if 1) the X-rays are generated only by intrinsically safe CRTs complying with Enclosure III, No. 6, 2) the values stipulated in accordance with Enclosure III, No. 6.2 are limited by technical measures and specified in the device and 3) it is adequately indicated on the X-ray emission source that the X-rays generated are adequately screened by the intrinsically safe CRT.		
2.2.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.	No TNV circuits.	**N/A**
2.3.2	S (NO): Requirements according to this annex, 6.1.2.1 apply.	No TNV circuits.	**N/A**
2.3.3 and 2.3.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.	No TNV circuits.	**N/A**
2.6.3.3	S (GB): The current rating of the circuit shall be taken as 13 A, not 16 A.	Considered.	**N/A**
2.7.1	C: Replace the subclause as follows: *Basic requirements* To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the	Replaced.	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		
	S (GB): To protect against excessive currents and short-circuits in the PRIMARY CIRCUIT OF DIRECT PLUG-IN EQUIPMENT, protective device shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT.	Equipment is not direct plug-in equipment.	**N/A**
2.7.2	C: Void.	Declared.	**N/A**
2.10.2	C: Replace in the first line "(see also 1.4.7)" by "(see also 1.4.8)".	Replaced.	**N/A**
2.10.3.1	S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage and will remain at 230 V in case of a single earth fault	Considered.	**P**
3.2.1.1	S (CH): Supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets: SEV 6532-2.1991, Plug type 15, 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991, Plug type 11, L+N 250 V, 10 A SEV 6534-2.1991, Plug type 12, L+N+PE 250 V, 10 A In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998: SEV 5932-2.1998, Plug type 25, 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998, Plug type 21, L+N 250 V, 16 A SEV 5934-2.1998, Plug type 23, L+N+PE 250 V, 16 A	No power supply cord provided.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	S (DK): Supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If ply-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.	No power supply cord provided.	**N/A**
	S (ES): Supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.	No power supply cord provided.	**N/A**
	S (GB): Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 – The Plugs and Socket etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE – 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.	No power supply cord provided.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	S (IE): Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 – National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.	No power supply cord provided.	**N/A**
3.2.3	C: Delete Note 1 and in Table 3A, delete the conduit sizes in parentheses.	Deleted.	**N/A**
3.2.5.1	C: Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2". In Table 3B, replace the first four lines by the following: Up to and including 6 0,75[1)] Over 6 up to and including 10 (0,75)[2)] 1,0 Over 10 up to and including 16 (1,0)[3)] 1,5 In the Conditions applicable to Table 3B delete the words "in some countries" in condition [1)]. In Note 1, applicable to Table 3B, delete the second sentence.	Replaced.	**N/A**
3.2.5.1	S (GB): A power supply cord with conductor of 1,25 mm^2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.	No power supply cord provided.	**N/A**
3.3.4	C: In table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: "Over 10 up to and including 16 1,5 to 2,5 1,5 to 4" Delete the fifth line: conductor sizes for 13 to 16 A.	Deleted.	**N/A**
3.3.4	S (GB): The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: - 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.	No power supply cord provided.	**N/A**
4.3.6	S (GB): The torque test is performed using a socket outlet complying with BS 1363 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C.	EUT is not direct plug-in type.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	S (IE): DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 – National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.	See above.	**N/A**
4.3.13.6	C: Add the following note: NOTE Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this recommendation are currently under development.	Added.	**N/A**
6.1.2.1	S (FI, NO, SE): Add the following text between the first and second paragraph: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES AND CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 2.10.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.7 shall be performed using 1,5 kV), and - is subject to ROUTINGE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950:2000, 6.2.2.1; - the additional testing shall be performed on all	No TNV circuits provided.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.		
6.1.2.2	S (FI, NO, SE): The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a service person.	No TNV circuits provided.	**N/A**
7.1	S (FI, NO, SE): Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply with the term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	No TNV circuit or cable distribution system provided.	**N/A**
G.2.1	S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage, and will remain at 230 V in case of a single earth fault.	It shall be evaluated when submitted for Norway national approval.	**N/A**
Annex H	C: Replace the last paragraph of this annex by: At any point 10 cm from the surface of the operator access area, the dose rate shall not exceed 1 μSv/h (0,1 mR/h) (see note). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete Note 2.	Replaced.	**N/A**
Annex P	C: Replace the text of this annex by: See annex ZA.	Replaced.	**P**
Annex Q	C: Replace the title of IEC 61032 by "Protection of persons and equipment by enclosures – Probes for verification". Add the following notes for the standards indicated: IEC 60127 NOTE Harmonized as EN 60127 (Series) (not modified) IEC 60269-2-1 NOTE Harmonized as HD 630.2.1 S4:2000 (modified) IEC 60529 NOTE Harmonized as EN 60529:1991 (not modified) IEC 61032 NOTE Harmonized as EN 61032:1998 (not modified) IEC 61140 NOTE Harmonized as EN 61140:2001 (not modified) ITU-T Recommendation K.31 NOTE in Europe, the suggested document is EN 50083-1.		**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
Annex ZA	C: NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR RELEVANT EUROPEAN PUBLICATIONS This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments). NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies. — IEC 60050-151 — IEC 60050-195 EN 60065:1998 + corr. June 1999 IEC 60065 (mod):1998 EN 60073:1996 IEC 60073:1996 HD 566 S1:1990 IEC 60085:1984 HD 214 S2:1980 IEC 60112:1979 HD 611.4.1.S1:1992 IEC 60216-4-1:1990 HD 21 [1)] Series IEC 60227 (mod) Series HD 22 [2)] Series IEC 60245 (mod) Series EN 60309 Series IEC 60309 Series EN 60317-43:1997 IEC 60317-43:1997 EN 60320 Series IEC 60320 (mod) Series HD 384.3 S2:1995 IEC 60364-3 (mod):1993 HD 384.4.41 S2:1996 IEC 60364-4-41 (mod):1992 [3)] EN 132400:1994 [4)] + A2:1998 + A3:1998 + A4:2001 IEC 60384-14:1993 EN 60417-1 IEC 60417-1 HD 625.1 S1:1996 + corr. Nov. 1996 IEC 60664-1 (mod):1992 EN 60695-2-2:1994 IEC 60695-2-2:1991 EN 60695-2-11:2001 IEC 60695-2-11:2000 — IEC 60695-2-20:1995 — IEC 60695-10-2:1995 — IEC 60695-11-3:2000 — IEC 60695-11-4:2000 EN 60695-11-10:1999 IEC 60695-11-10:1999 EN 60695-11-20:1999 IEC 60695-11-20:1999 EN 60730-1:2000 IEC 60730-1:1999 (mod) EN 60825-1:1994 + corr. Febr. 1995 + A11:1996 + corr. July 1997 IEC 60825-1:1993 EN 60825-2:2000 IEC 60825-2:2000 — IEC 60825-9:1999 EN 60851-3:1996 IEC 60851-3:1996 EN 60851-5:1996 IEC 60825-5:1996 EN 60851-6:1996 IEC 60851-6:1996 — IEC 60885-1:1987 EN 60990:1999 IEC 60990:1999 — IEC 61058-1:2000 EN 61965:2001 IEC 61965:2000 EN ISO 178:1996 ISO 178:1993 EN ISO 179 Series ISO 179 Series EN ISO 180:2000 ISO 180:1993 — ISO 261:1998 — ISO 262:1998		**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	EN ISO 527 Series — EN ISO 4892 Series — EN ISO 8256:1996 — EN ISO 9773:1998 — —	ISO 527 Series ISO 386:1984 ISO 4892 Series ISO 7000:1989 ISO 8256:1990 ISO 9772:1994 ISO 9773:1998 ITU-T:1988 Recommendation K.17 ITU-T:2000 Recommendation K.21	
	1) The HD 21 series is related to, but not directly equivalent with the IEC 60227 series 2) The HD 22 series is related to, but not directly equivalent with the IEC 60245 series 3) IEC 60364-4-41:1992 is superseded by IEC 60364-4-41:2001 4) EN 132400, Sectional Specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains (Assessment level D), and its amendments are related to, but not directly equivalent to IEC 60384-14		

1.5.1	TABLE: list of critical components				P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity [1.]
LCD monitor					
Switching Power Supply with DC/AC inverter board	Lite-on	PTB-1942	I/P: 100-240Vac, 50/60Hz, 1.1A; O/P: 5.25Vdc/1.5A, 22Vdc/1.0A (for power supply) I/P: 22Vdc, 1.0A; O/P: 2000Vrms, 7.5mA (for DC/AC inverter)	--	--
PCB	--	--	V-1, 105°C min.	UL 94	UL
Metal enclosure	--	--	Thickness 0.81mm min.	--	--
Base stand material	--	--	Plastic material HB min. cover with metal, weight 0.52 kg	UL 94	UL
Plastic Enclosure	--	--	HB, thickness 1.8 mm min.	UL 94	UL
LCD Panel	AUO	M190PW01	19", TFT type	--	--
	Samsung	LTM190M2-L31	19", TFT type	--	--
Mylar sheet between power supply board component side and metal enclosure	--	--	V-2 min., cover area 73.5mm by 113.5mm	UL 94	UL
Switching power supply with DC/AC inverter board type PTB-1942					
- Appliance Inlet (P801)	Solteam	ST-01	10A, 250Vac	IEC 60320-1	VDE, S, D, N, FI, UL, CSA, SEV
	Inalways	0707-1, 0711-2	10A, 250Vac	IEC 60320-1	VDE, S, D, N, FI, UL, CSA, SEV
	Duoling	CDJ-3	10A, 250Vac	IEC 60320-1	VDE, S, D, N, FI, UL, CSA, SEV
- Fuse (F801)	Littelfuse	215	T3.15AH, 250V	IEC 60127-1 IEC 60127-2	VDE, S, UL
	Bel	5HT	T3.15AH, 250V	IEC 60127-1 IEC 60127-2	VDE, S, UL
- Bleeder Resistor (R820, R821, R822)	--	SMD type	300kΩ, 1/8W	--	--

- X Capacitor (C801, C819) (optional)	Hua Jung	MKP	Max. 0.47μF, 275V, 100°C	IEC 60384-14/ 1993	VDE, SEV, UL, CSA, FI
	Matsushita	ECQ-UV, ECQUL	Max. 0.47μF, 275V, 85°C min.	IEC 60384-14/ 1993	VDE, SEV, S, N, D, FI, UL, CSA
	Pilkor	PCX2 337	Max. 0.47μF, 275V, 100°C	IEC 60384-14/ 1993	VDE, SEV, S, N, D, FI, UL
	Teapo	XG-VS	Max. 0.47μF, 275V, 85°C	IEC 60384-14/ 1993	VDE, SEV, S, N, D, FI, UL, CSA
	Iskra	KNB1560	Max. 0.47μF, 275V, 100°C	IEC 60384-14/ 1993	VDE, UL, CUL
	Europtronic	MPX	Max. 0.47μF, 275V, 100°C	IEC 60384-14/ 1993	VDE, UL, CUL
- Y Capacitor (C802, C803, C804, C820, C825, C832) (optional) (Y1 or Y2 type)	Matsushita	TS, RS, NS-A	470-4700pF, 250V, 85°C min.	IEC 60384-14/ 1993	VDE, UL, CSA, FI
	Pan Overseas	AC, AH	470-4700pF, 250V, 125°C	IEC 60384-14/ 1993	VDE, FI, UL, CSA
	Success	SF, SE, SB	470-4700pF, 250V, 85°C min.	IEC 60384-14/ 1993	VDE, FI, UL, CSA
	TDK	CD	470-4700pF, 250V, 125°C	IEC 60384-14/ 1993	VDE, FI, UL, CSA
	Dongguan South Hongming	F	470-4700pF, 250V, 125°C	IEC 60384-14/ 1993	VDE, FI, UL, CSA
	Murata	KX, KD	470-4700pF, 250V, 85°C min.	IEC 60384-14/ 1993	VDE, FI, UL, CSA
	Dongguan South Hongming	F	470-4700pF, 250V, 85°C	IEC 60384-14/ 1993	VDE, FI, UL, CSA
- Line Filter (T801)	LSE	613800300XP (X:0-9 for marketing purpose only)	120°C	--	--
	DARFON	613800300XP40 (X:0-9 for marketing purpose only)	120°C	--	--
- Thermistor (R802)	--	NTC type	10Ω at 25°C, 3A	--	--
- Bridge Diode (D801)	--	--	800V, 4A	--	--
- Ripple Capacitor (C805)	--	Electrolytic can type	100μF, 450V min., 85°C	--	--

- Transistor (Q803)	--	--	650V, 7.5A	--	--
- Current sense resistor (R811)	--	--	0.27Ω, 2W	--	--
- Power Transformer (T802)	L.S.E	613103000XP00 (X:0-9 for marketing purpose only)	Class B	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
	DARFON	613103000XP20 (X:0-9 for marketing purpose only)	Class B	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
	Li Tai	613103000XP60 (X:0-9 for marketing purpose only)	Class B	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
- DC/AC Inverter Transformer (T101)	LSE	613104000XP00 (X = 0-9 for marketing purpose only)	130°C	--	--
	Darfon	613104000XP20 (X:0-9 for marketing purpose only)	130°C	--	--
- Optocoupler (I802)	LITEON	LTV-817	Di = 0.4 mm, Int. = 4.0 mm, Ext. = 8.0 mm, Min.100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, UL
	LITEON	LTV-816	Di = 0.6 mm, Int. = 4.6 mm, Ext. = 7.4 mm, Min.100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, UL
	LITEON	LTV-713 series	Di = 0.4 mm, Int. = 2.0 mm, Ext. = 8.0 mm, Min.100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, UL
	NEC	PS 2561	Di = 0.4 mm, Int. = 4.0 mm, Ext. = 7.0 mm, Min.100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, UL
	NEC	PS2581	Di = 0.4 mm, Int. = 4.0 mm, Ext. = 8.0 mm, Min.100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, UL
	NEC	PS2561A-1 series	Di = 0.4 mm, Int. = 4.0 mm, Ext. = 7.0 mm, Min.100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, UL

	QT	H11A817A H11A817B H11A817C	Di = 0.4 mm, external creepage = 7.0 mm, AC 3000V, Min.100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, UL
	Sharp	PC123	Di = 0.7 mm, Int. = 5.0 mm, Ext. = 8.0 mm, Min.100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, UL
	Sharp	PC817	Di = 0.4 mm, Int. = 5 mm, Ext. = 6.4 mm, Min.100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, UL
	Toshiba	TLP621	Di = 0.8 mm, external creepage = 8.0 mm, AC 3000V, Min.100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, UL
	Toshiba	TLP721	Di = 0.8 mm, Int. = 4.0 mm, Ext. = 8.0 mm, 100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, FI
	Toshiba	TLP421 series	Di = 0.4 mm, external creepage = 8.0 mm, AC 3000V, 100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, FI
	Vishay	TCET1100 TCET1102 TCET1103 TCET1107 TCET1108 TCET1109	Di = 0.6 mm, Int. = 4.2 mm, Ext. = 8.1 mm, 100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, FI
	Vishay	TCET1103G TCET1107G TCET1108G TCET1109G	Di = 0.7 mm, Int. = 4.2 mm, Ext. = 8.1 mm, 100°C	DIN EN60747-5-2: 2003, IEC 60950-1	VDE, FI

Note(s):

1. An asterisk indicates a mark that assures the agreed level of surveillance.
2. In Optocoupler technical data column, where “Di” means distance through insulation, “Int.” means internal creepage distance, “Ext.” means external creepage distance.

1.6.2	TABLE: electrical data (in normal conditions)					P
Fuse #	Irated (A)	U(V)/F(Hz)	P (W)	I (A)	Ifuse (A)	Condition/status
D-sub mode						
F801	--	90/50	44.4	0.82	0.82	Maximum normal load
F801	--	90/60	44.4	0.83	0.83	Maximum normal load
F801	1.1	100/50	43.9	0.75	0.75	Maximum normal load
F801	1.1	100/60	43.9	0.76	0.76	Maximum normal load
F801	1.1	240/50	43.0	0.40	0.40	Maximum normal load
F801	1.1	240/60	43.1	0.41	0.41	Maximum normal load
F801	--	254/50	43.1	0.38	0.38	Maximum normal load
F801	--	254/60	43.2	0.38	0.38	Maximum normal load
F801	--	264/50	43.3	0.37	0.37	Maximum normal load
F801	--	264/60	43.4	0.37	0.37	Maximum normal load
Note(s):						

2.1.1.5	TABLE: max. V, A, VA test				P
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
5.25	1.5	5.24	4.5	21.51	
22	1.0	23.8	1.7	39.61	
Note(s): Test voltage is 240Vac, 60Hz					

2.1.1.7	TABLE: discharge test				P
Condition	τ calculated (s)	τ measured (s)	t u→ 0V (s)	Comments	
Line to Neutral	0.85	0.83	--	Vpk=370V, 37% of Vpk=136.9V, after 1 sec voltage drop to 100V	
Note(s): Overall capacity: 0.94μF(C819=C801=0.47μF) Discharge resistor: 0.9MΩ (R820=R821=R822=300kΩ)					

2.2.2	TABLE: Hazardous voltage measurement			P
Transformer	Location	max. Voltage		Voltage Limitation Component
		V peak	V d.c.	

T802	Pin 7 – Pin 6 (earth)	22.8	--	--
T802	Pin 10 – Pin 6 (earth)	99	--	--
	After D809	31	--	D809
Note(s):				

2.2.3	TABLE: SEL voltage measurement		P
Location	Voltage measured (V)	Comments	
+22V output to earth	0.01	D809 shorted. The o/p-voltage did not exceed 42.4Vpk.	
Note(s):			

2.4.2	TABLE: limited current circuit measurement				P
Location	Voltage (V)	Current (mA)	Freq. (kHz)	Limit (mA)	Comments
Normal condition					
P101 pin 1 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
P101 pin 1 to pin 2	32.8	16.4	45	31.5	--
P101 pin 2 to earth	4.12	2.06	45	31.5	--
P102 pin 1 to earth	36	18	46	32.2	--
Single fault condition (C112 short)					
P101 pin 1 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
P101 pin 1 to pin 2	0	0	--	--	Unit shutdown immediately, no hazards.
P101 pin 2 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
P102 pin 1 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
Single fault condition (D106 short)					
P101 pin 1 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
P101 pin 1 to pin 2	30	15	45	31.5	--
P101 pin 2 to earth	4.24	2.12	45	31.5	--
P102 pin 1 to earth	36	18	46	32.2	--
Single fault condition (C125 short)					
P101 pin 1 to earth	0	0	--	--	Unit shutdown immediately, no hazards.

P101 pin 1 to pin 2	0	0	--	--	Unit shutdown immediately, no hazards.
P101 pin 2 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
P102 pin 1 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
Single fault condition (D116 short)					
P101 pin 1 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
P101 pin 1 to pin 2	0	0	--	--	Unit shutdown immediately, no hazards.
P101 pin 2 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
P102 pin 1 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
Single fault condition (D101 short)					
P101 pin 1 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
P101 pin 1 to pin 2	0	0	--	--	Unit shutdown immediately, no hazards.
P101 pin 2 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
P102 pin 1 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
Single fault condition (C130 short)					
P102 pin 1 to earth	36	18	47	32.9	--
P101 pin 1 to pin 2	33	16.5	46	32.2	--
Single fault condition (C131 short)					
P102 pin 1 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
P101 pin 1 to pin 2	0	0	--	--	Unit shutdown immediately, no hazards.
Single fault condition (D117 short)					
P101 pin 1 to earth	0	0	--	--	Unit shutdown immediately, no hazards.
P101 pin 1 to pin 2	0	0	--	--	Unit shutdown immediately, no hazards.
Single fault condition (C115 short)					
P101 pin 1 to pin 2	0	0	--	--	Unit shutdown immediately, no hazards.
Note(s): Output measured with a 2kΩ non-inductive resistor as load.					

2.5	TABLE: limited power source measurement		P
	Limits	Measured	Verdict
For +5.25V output of power supply with DC/AC inverter board			
According to Table 2B in normal condition, U_{OC}=5.27V (when VR801 adjust to 10 kΩ)			
current (in A)	8	4.4	Pass
apparent power (in VA)	5 * 5.27 = 26.35	22.3	Pass
According to Table 2B in normal condition, U_{OC}=5.37V (when VR801 adjust to 0 kΩ)			
current (in A)	8	4.4	Pass
apparent power (in VA)	5 * 5.27 = 26.85	22	Pass
According to Table 2B in fault condition with R811 short, U_{OC}= 5.24			
current (in A)	8	4.0	Pass
apparent power (in VA)	5 * 5.24 = 26.35	19.04	Pass
According to Table 2B in fault condition with I802 pin1-pin2 short, U_{OC}= 1)			
current (in A)	8	1)	Pass
apparent power (in VA)	5 * Uoc = 1)	1)	Pass
According to Table 2B in fault condition with I802 pin1 open, U_{OC}=1)			
current (in A)	8	1)	Pass
apparent power (in VA)	5 * Uoc = 1)	1)	Pass
According to Table 2B in fault condition with I802 pin3-pin4 short, U_{OC}=1)			
current (in A)	8	1)	Pass
apparent power (in VA)	5 * Uoc = 1)	1)	Pass
For +22V output of power supply with DC/AC inverter board			
According to Table 2B in normal condition, U_{OC}=23.8V			
current (in A)	8	1.7	Pass
apparent power (in VA)	100	39.61	Pass
According to Table in fault condition with R811 short, U_{OC}=23.8V			
current (in A)	8	4.3	Pass
apparent power (in VA)	100	99.3	Pass
According to Table 2B in fault condition with I802 pin1-pin2 short, U_{OC}= 1)			
current (in A)	8	1)	Pass
apparent power (in VA)	5 * Uoc = 1)	1)	Pass
According to Table 2B in fault condition with I802 pin1 open, U_{OC}=1)			
current (in A)	8	1)	Pass
apparent power (in VA)	5 * Uoc = 1)	1)	Pass
According to Table 2B in fault condition with I802 pin3-pin4 short, U_{OC}=1)			
current (in A)	8	1)	Pass

apparent power (in VA)	5 * Uoc = [1]	[1]	Pass
Note(s): [1] Unit shut down. [2] Input Voltage is 240Vac, 60Hz			

2.6.3.4	TABLE: ground continue test		**P**
Location		Resistance measured (mΩ)	Comments
AC inlet earth pin to metal enclosure		6	25A, 1min
AC inlet earth pin to C802 earthed trace		10	25A, 1min
AC inlet earth pin to metal enclosure		7	40A, 2min
AC inlet earth pin to C802 earthed trace		11	40A, 2min
Note(s):			

2.10.2	Table: working voltage measurement			**P**
Location		RMS voltage (V)	Peak voltage (V)	Comments
T802 Pin 2 to pin 6		**241**	**472**	Max. Vrms and Vpeak of T802
Pin 2 to pin 7		236	472	
Pin 2 to pin 10		221	464	
Pin 2 to pin 6		193	340	
Pin 2 to pin 7		192	360	
Pin 2 to pin 10		196	428	
Pin 3 to pin 6		199	348	
Pin 3 to pin 7		199	356	
Pin 3 to pin 10		203	380	
Pin 4 to pin 6		200	384	
Pin 4 to pin 7		200	368	
Pin 4 to pin 10		198	368	
Pin 5 to pin 6		198	348	
Pin 5 to pin 7		198	348	
Pin 5 to pin 10		204	372	
I802 Pin 1 to pin 3		198	348	
Pin 1 to pin 4		188	332	

Pin 2 to pin 3	192	352	
Pin 2 to pin 4	193	340	
Note(s): Input Voltage is 240Vac, 60Hz			

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					**P**
Clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required dcr (mm)	dcr (mm)
Primary components (with 10N) to earthed metal enclosure	**420**	**250**	**2.0**	**See below**	**2.5**	**See below**
- Heat sink of Q803 to metal enclosure (isolated by mylar sheet)				3.0		3.0
Primary components (with 10N) to secondary components (with 10N) of SPS board	**420**	**250**	**4.0**	**See below**	**5.0**	**See below**
- C826 to C828				8.0		8.0
- Heat sink of Q803 to C124				10.0		10.0
Primary traces to earthed trace of SPS board	**420**	**250**	**2.0**	**See below**	**2.5**	**See below**
- J022 to P801 earthed pin				2.5		2.5
- J022 to P801 earthed trace				2.6		2.6
- Under P801 (isolated by a cut slot)				2.5		5.5
- F801 trace to earthed trace				3.0		3.0
- Under C820 (isolated by a cut slot)				2.5		5.5
- Near R802 (isolated by a cut slot)				2.5		5.5
- Under C825				3.4		3.4
- Under C803				3.0		3.0
- Under C804				3.0		3.0
- C801 trace to earthed trace				3.0		3.0
- Near T801				3.0		3.0
- Under C802				6.4		6.4
- Under C832				7.3		7.3
Primary traces to secondary traces of SPS board	**420**	**250**	**4.0**	**See below**	**5.0**	**See below**

- Heat sink of R820 trace to R141 trace				6.8		6.8
- Under I802				4.7		6.2
- Under T802	472	250	4.2	7.5	5.0	7.5
Between fuse two ends [1.]	420	250	1.5	2.5	2.5	2.5
Primary trace before fuse [1.]	420	250	1.5	2.6	2.5	2.6

Note(s):

1. Functional insulation, complied with sub-clause 5.3.4 item a).
2. Other functional insulation according to sub-clause 5.3.4 item c).
3. Component(s) glued in position: C805, C832, C802, C826 and C828.
4. There is a mylar sheet between component side of switching power supply with DC/AC inverter board and metal enclosure to keep basic insulation, cover area 73.5mm by 113.5mm.
5. There are two cut slots (1.2mm x 10mm) between Line trace and earthed trace of AC inlet (P801) of switching power supply with DC/AC inverter board to keep basic insulation requirement.
6. There is a cut slot (1.2mm x 11mm) between Neutral trace and earthed trace of AC inlet (P801) of switching power supply with DC/AC inverter board.
7. There is a L-shape cut slot (1.5mm x 7.6mm) under I802 of switching power supply with DC/AC inverter board.
8. There is a cut slot (1.2mm x 11mm) between Neutral trace and J022 trace of switching power supply with DC/AC inverter board.
9. The internal wire of P802 was further cover with the PVC tube.

2.10.5	TABLE: distance through insulation measurements				**P**
Distance through insulation di at/of:		U r.m.s. (V)	Test voltage (V)	Required di (mm)	di (mm)
Photo coupler (reinforced insulation)		250	AC 3000	0.4	[1)]

Note(s): [1)] See appended table 1.5.1 for approved component source details.

4.5.1	TABLE: maximum temperatures		**P**
	test voltage (V) .....:	a) 90V b) 264V	—
	t1 (°C) .....:	--	—
	t2 (°C) .....:	--	—

Maximum temperature T of part/at:	T (°C)		allowed T_{max} (°C)
Test voltage	a)	b)	--
AC inlet near line pin (power board)	52.8	51.1	70
C825 body (power board)	74.0	62.8	85
C805 body (Power board)	68.6	59.4	85

C819 body (power board)	76.2	64.3	85
T801 coil (power board)	86.5	84.1	120
PCB near R802 (power board)	89.8	63.8	105
PCB near Q803 (power board)	83.0	79.6	105
T802 coil (class B)	92.2	88.8	110
T802 core (class B)	86.5	84.1	110
I802 body (power board)	69.6	67.1	100
PCB near D809 (power board)	86.7	84.8	105
T101 coil (DC/AC inverter)	91.0	89.0	130
T101 core (DC/AC inverter)	83.8	82.1	130
Plastic enclosure inside near T802	70.7	68.3	--
Plastic enclosure outside near T802	68.4	63.0	95
Ambient	40	40	--
Ambient during test	22.1	22.1	--

Temperature T of winding:	R_1 (Ω)	R_2 (Ω)	T (°C)	allowed T_{max} (°C)	insulation class

Note(s):
1. The temperatures were measured under the worse case normal mode defined in 1.2.2.1 and as described in sub-clause 1.6.2 at voltages as described above.

2. With a specified ambient temperature of 40°C.

3. The maximum temperatures are calculated as follows:

Winding components (with safety isolation):

- Class B → Tmax = 120 °C - 10 °C = 110°C

4. The maximum temperatures measured are recalculated as follows: T + (Tma – Tamb) where T is the maximum temperature measured during test, Tma is the maximum ambient temperature and Tamb is the ambient temperature during test.

4.5.2	TABLE: ball pressure test of thermoplastic parts		**P**
	allowed impression diameter (mm) .....:	≤ 2 mm	—

Part	Test temperature (°C)	Impression diameter (mm)
Bobbin of T802: E I DUPONT/FR-530L	125	1.5
Bobbin of T801: Chung Chun Plastics Co., Ltd/PBT 4115	125	0.8
Bobbin of T801: Nan Ya Plastics Corp./PBT 1403G6	125	1.2
Note(s):		

4.6.1, 4.6.2	Table: enclosure openings		**P**
Location	Size (mm)	Comments	
Plastic enclosure			
Top	Max. 29.0 mm x 3.0 mm	Numerous rectangle openings, cover area 363 mm x 29 mm.	
Left side	Max. 13.0 mm x 2.0 mm	Numerous rectangle openings, cover area 36 mm x 13 mm.	
Right side	Max. 13.0 mm x 2.0 mm	Numerous rectangle openings, cover area 36 mm x 13 mm.	
Bottom	Max. 28.8 mm x 2.5 mm	Numerous rectangle openings, cover area 365 mm x 28.8 mm.	
Metal enclosure			
Top	Max. ∅4.5 mm	Numerous circle openings, cover area 290mm x 29 mm.	
Left side	Max. ∅3.0 mm	Numerous circle openings, cover area 131 mm x 27 mm. No hazardous parts located on 5^{o} vertical project of opening.	
Right side	Max. ∅3.0 mm	Numerous circle openings, cover area 131 mm x 27 mm.	
Bottom	Max. ∅1.9 mm center to center 5.0 mm thickness 0.81 mm	Numerous circle openings, cover area 217 mm x 27 mm.	
Rear-left	Max. ∅1.9 mm center to center 10.0 mm thickness 0.81 mm	Numerous circle openings, cover area 85 mm x 35 mm. Opening complied with bottom opening of fire enclosure requirement.	
Rear-right	Max. ∅1.9 mm	Numerous circle openings, cover area 84 mm x 53 mm.	
Note(s): Internal metal enclosure was considered as fire enclosure.			

4.7	Table: resistance to fire			**N/A**
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class
Note(s): Internal metal enclosure was considered as fire enclosure.				

5.1.6	TABLE: touch current measurement			**P**
Condition	L→ terminal A (mA)	N → terminal A (mA)	Limit (mA)	Comments

System ON (Fuse in)	1.6	1.6	3.5	To earthed metal enclosure with switch “e” opened.
System ON (Fuse in)	1.6	1.6	3.5	To earthed output connector, switch “e” opened.
System ON (Fuse in)	0.05	0.05	0.25	To plastic enclosure with foil with switch “e” closed.

Note(s):
Input voltage: 264V
Input frequency: 60Hz
Overall capacity: C803=C804=C802=C820=C825=C832=4700pF

5.2	TABLE: electric strength tests and impulse tests		P
Test voltage applied between:		Test voltage (V)	Breakdown
Unit: primary and secondary		DC 4242	No
Unit: primary and earth		DC 2414	No
T802 [1]: primary and secondary		AC 3000	No
T802 [1]: primary and core		DC 2414	No
T802 [1]: secondary and core		DC 2414	No
Two layers of insulation tape of T802		AC 3000	No
Mylar sheet		AC 1500	No

Note(s):
[1] For all source of T802

5.3	TABLE: fault condition tests		P
	ambient temperature (°C) ..... :	25°C, if not otherwise stated	—
	model/type of power supply ..... :	See append table 1.5.1	—
	manufacturer of power supply ..... :	See append table 1.5.1	—
	rated markings of power supply ..... :	See append table 1.5.1	—

No.	Component no.	Fault	Test voltage (V)	Test time	Fuse no.	Fuse current (A)	Result
1	D801	s-c	240	1sec	F801	--	F801 opened, no hazards.
2	C805	s-c	240	1sec	F801	--	F801 opened, no hazards.
3	D810	s-c	240	10 min	F801	0.04	Unit shutdown, no components damaged, no hazards.
4	D809	s-c	240	10 min	F801	0.05	Unit shutdown, no components damaged, no hazards.

5	C8118	s-c	240	10 min	F801	0.04 to 0.15	Unit shutdown, no components damaged, no hazards.
6	C822	s-c	240	10 min	F801	0.04 to 0.19	Unit shutdown, no components damaged, no hazards.
7	T802 pin 6-7	s-c	240	10 min	F801	0.05	Unit shutdown, no components damaged, no hazards.
8	T802 pin 7-10	s-c	240	10 min	F801	0.04	Unit shutdown, no components damaged, no hazards.
9	T802 pin 1-2	s-c	240	10 min	F801	0.04 to 0.17	Unit shutdown, no components damaged, no hazards.
10	T802 pin 4-5	s-c	240	10 min	F801	0.04 to 0.17	Unit shutdown, no components damaged, no hazards.
11	T802 pin 3-5	s-c	240	10 min	F801	0.04 to 0.17	Unit cycle protection, no components damaged, no hazards.
12	Q803 G-S	s-c	240	10 min	F801	0.04	Unit shutdown, no components damaged, no hazards.
13	Q803 D-S	s-c	240	10 min	F801	0.04	R803 damaged, no hazards.
14	Q803 G-D	s-c	240	1sec	F801	0.04	R803, I801, Q803 damaged, no hazards.
15	I802 pin 1-2	s-c	240	10 min	F801	0.04	Unit shutdown, no components damaged, no hazards.
16	I802 pin 3-4	s-c	240	10 min	F801	0.04	Unit shutdown, no components damaged, no hazards.
17	I802 pin 1	o-c	240	10 min	F801	0.04	Unit shutdown, no components damaged, no hazards.
18	Ventilation openings	Blocked	240	2.5 hrs	F801	0.4	Temperatures were stabled, no hazards. Max. temp. of T802 coil = 71.3°C, T802 core = 69.1°C, T101 coil = 78.7°C, T101 core = 70.5°C, I802 = 58.1°C, ambient = 24.1°C.
19	T802 pin 10 to earth (after D809)	o-l	240	8 hrs	F801	--	Overload to 2.2A then unit shutdown, T802 coil = 86.0°C, T802 core = 76.0°C, I802 = 55°C, ambient = 23.0°C, no damaged, no hazards.

20	T802 pin 7 to earth (after D810)	o-l	240	4.5 hrs	F801	--	Overload to 3.3A then unit shutdown, T802 coil = 99°C, T802 core = 83°C, I802 = 63°C, ambient = 24°C, no damaged, no hazards.

Note(s):
1). In fault column, where s-c=short-circuited, o-c=open-circuited, o-l = overload.
2). For fuse opened conditions were tested with each source of fuse.
3). Temp. limited of power transformer (T802) according to table C.1 is 175°C -(40°C -25°C)=160°C.

C.2	Safety isolation transformer	**P**
	Construction details:	
Transformer part name: T802		
Manufacturer: See appended table 1.5.1		
Type: See appended table 1.5.1		
Constructions of all source of T802 are identical, only model designation and trademark different.		

Recurring peak voltage	472V	
Required clearance for reinforced insulation (from table 2H and 2J)	4.0mm+0.2mm	
Effective voltage rms	250V	
Required creepage distance for reinforced insulation (from table 2L)	5.0mm	
Measured min. creepage distance		
Location	inside (mm)	outside (mm)
prim-sec	6.2 (winding to winding)	5.2 (winding to pin)
prim-core	3.0	3.0
sec-core	3.2	3.2
prim-prim	--	--
Measured min. clearances		
Location	inside (mm)	outside (mm)
prim-sec	6.2 (winding to winding)	5.2 (winding to pin)
prim-core	3.0	3.0
sec-core	3.2	3.2
prim-prim	--	--

Construction:	
Concentric windings on on bobbin (horizontal type core), three layers insulation between primary and secondary windings. Core is considered as floating part. Distance tape is 3.2mm min. (except for primary winding N5, N6, N1 side near bobbin is 3.0mm min. and primary winding N2, N3, N4 side near bobbin is 3.5mm min.) on both sides of transformer bobbin. Outer core is further with wrapped tape width 3.5mm near primary and secondary pin side. Winding ends additionally fixed with tape, outer winding is primary. Three layers insulation tape around outer winding. Tubing on all winding exit ends are leaded above the distance tape. Pin 8 cut off.	
Pin numbers	
Prim.	4-5-3; 1-2
Sec.	10-9-7-6
Bobbin	
Material	EI Dupont, FR530L, V-0, 150°C
Thickness	min. 0.8mm
Electric strength test	
With 3000 V a.c. after humidity treatment	
Result	Pass

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

APPENDIX	Australian National Differences according to CB Bulletin No. 112A, December 2006 (AS/NZS 60950.1:2003) (IEC Publication 60950-1:2001)		**P**
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
	Annex ZZ Variations		
1.2	Between the definitions for "Person, service" and "Range, rated frequency" insert the following: Potential ignition source 1.2.12.201	Inserted.	**N/A**
1.2.12.15	After the definition of 1.2.12.15, add the following: 1.2.12.201 Potential ignition source: Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s. current under normal operating conditions exceeds 15 VA. Such a faulty contact or interruption in an electrical connection includes those which may occur in conductive patterns on printed boards. NOTE 201: An electronic protection circuit may be used to prevent such a fault from becoming a potential ignition source. NOTE 202: This definition is from AS/NZS 60065:2003.	Added.	**N/A**
1.5.1	Add the following to the end of first paragraph: "or the relevant Australian/New Zealand Standard."	Added.	**N/A**
1.5.2	Add the following to the end of first and third dash items: "or the relevant Australian/New Zealand Standard."	Added.	**N/A**
2.1	Delete the Note.	Deleted.	**N/A**
3.2.3	Delete Note 2.	Deleted.	**N/A**
3.2.5	Modify Table 3B as follows:	Modified.	**N/A**

Rated current of equipment A	Nominal cross-sectional area mm^2	AWG or kcmil (cross-sectional area in mm^2) see note 2
Over 0.2 up to and including 3	0.5[1)]	18 [0.8]
Over 3 up to and including 7.5	0.75	16 [1.3]

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

	Over 7.5 up to and including 10	(0.75)[2] 1.00	16 [1.3]		
	Over 10 up to and including 16	(1.0)[3] 1.5	14 [2]		
	Replace footnote 1) with the following: [1] This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliances, and the entry to the plug does not exceed 2 m (0.5 mm² three-core supply flexible cords are not permitted; see AS/NZS 3191). Delete Note 1.				
4.3.6	Replace paragraph three with: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112, shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.			Replaced.	**N/A**
4.3.13.5	Add the following to the end of the first paragraph: ", or AS/NZS 2211.1"			Added.	**N/A**
4.7	Add the following paragraph: For alternative tests refer to clause 4.7.201.			See below.	**N/A**
4.7.201	Add the following after clause 4.7.3.6: 4.7.201 Resistance to fire - Alternative tests			Added. However, equipment under test and materials and components in compliance with requirements of IEC 60950-1. Alternative test methods were not considered.	**N/A**
4.7.201.1	General Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames originating from inside the apparatus, or the following: (a) Components that are contained in an enclosure having a flammability category of FV-0 according to AS/NSZ 4695.707 and having openings only for the connecting wires filling the openings completely, and for the ventilation not exceeding 1 mm in width regardless of the length. (b) The following parts which would contribute			See above.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	negligible fuel to a fire: - small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; - small electrical components, such as capacitors with a volume not exceeding 1750 mm^3, integrated circuits, transistors and optocoupler packages, if these components are mounted on material flammability category FV-1 or better according to AS/NZS 4695.707 NOTE - In considering how to minimize propagation of fire and what "small parts" are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating fire from one part to another. Compliance is checked by tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5. For the base materials of printed boards, compliance is checked by the test of 4.7.201.5. The tests shall be carried out on parts of non-metallic material, which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation, as they would be in normal use. These tests are not carried out on internal wiring.		
4.7.201.2	Parts of non-metallic material are subjected to glow wire test of AS/NZS 4695.2.11, which is carried out at 550 °C. Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of materials classified at least FH-3 according to ISO 9772 provided that the sample was not thicker than the relevant part.	See above.	**N/A**
4.7.201.3	Testing of insulating materials Parts of insulating materials supporting potential ignition sources shall be subject to the glow-wire test of AN/NZS 4695.2.11, which is carried out at 750 °C. The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection. NOTE - Contacts in components such as switch contacts are considered to be connections.	See above.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	For parts, which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested. The needle-flame test shall be made in accordance with AS/NZS 4695.2.2 with the following modifications: **5 Severities** Replace with: The duration of application of the test flame shall be 30 s ± 1 s. **8 Test procedure** 8.2 Modification: Replace the first sentence with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1. 8.4 Modification: The first paragraph does not apply. Addition: If possible, the flame shall be applied at least 10 mm from a corner. 8.5 Replacement: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall then withstand the test. **10 Evaluation of test results** Replace with: The duration of burning (t_b) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s. The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to IEC 60695-11-10, provided that the sample tested was not thicker than the relevant part.		

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
4.7.201.4	Testing in the event of non-extinguishing material If parts, other than enclosures, do not withstand the glow-wire tests of 4.7.201.3, by failure to extinguish within 30 s after the removal of the glow-wire tip, the needle-flame test detailed in 4.7.201.3 is made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not to be tested. NOTE 1 - If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirement of clause 4.7.201 without the need for consequential testing. NOTE 2 - If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burring or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirement of clause 4.7.201 without the need for consequential testing. NOTE 3 - Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting in contact with or in close proximity to connections.	See above.	**N/A**
4.7.201.5	Testing of printed boards The base material of printed boards is subjected to needle-flame test to Clause 4.7.201.3. The flame is applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm for a potential ignition source. The test is not carried out if the – - Printed board does not carry any potential ignition source; - Base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category FV-1 or better according to AS/NZS 4695.707, or the printed boards are protected by an enclosure meeting the flammability category FV-0	For PCB material refer to table 1.5.1 of IEC 60950-1 test report.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	according to AS/NZS 4695.707, or made of metal, having openings only for connecting wires which fill the opening completely, or - Base material of printed boards, on which the available apparatus power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material printed boards supporting spark gaps which provide protection against overvoltages, is of flammability category FV-0 according to AS/NSZ 4695.707 or the printed boards are contained in a metal enclosure, having openings only for connecting wires fill the openings completely. Compliance is determined using the smallest thickness of the material. NOTE - Available apparent power is the maximum apparent power, which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximise the apparent power for more than 2 min when the circuit supplied is disconnected.		
6.2.2	Add the following after the first paragraph: In Australia (this variation does not apply in New Zealand), compliance with 6.2.2 is checked by the tests of both 6.2.2.1 and 6.2.2.2. Delete the note.	No TNV circuit.	**N/A**
6.2.2.1	Delete Note 2. Add the following after the first paragraph: In Australia (this variation does not apply in New Zealand), the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator of annex N for 10/700 μs impulses. The interval between successive impulses is 60 s and the initial voltage, Uc, is: - for 6.2.1 a): 7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and - for 6.2.1b) and 6.2.1c): 1.5 kV. NOTE 201 - The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 – The 2.5 kV impulse for 6.2.1a) was chosen to ensure adequacy of the insulation concerned and does not necessarily simulate	No TNV circuit.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	likely overvoltages.		
6.2.2.2	Delete the note. Add the following after the second paragraph: In Australia (this variation does not apply in New Zealand), the a.c. test voltage is: - for 6.2.1a): 3 kV; and - for 6.2.1b) and 6.2.1c): 1.5 kV. NOTE 201 – Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 202 – The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.	No TNV circuit.	**N/A**
Annex P	Add the following Normative References to Annex P: IEC 60065, Audio, Video and similar electronic apparatus - Safety requirements AS/NZS 3112, Approval and test specification - Plugs and socket-outlets AS/NZS 3191, Approval and test specification - Electric flexible cords AS/NZS 4695.707, Fire hazard testing of electrotechnical products - Methods of test for the determination of the flammability of solid electrical insulating materials when exposed to an igniting source	Added.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	Korean National Differences according to CB Bulletin No. 112A, December 2006 (K60950) (IEC Publication 60950-1:2001)		**P**
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
1.5.101	Addition: Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305).	No power supply cords provided.	**N/A**
7	Addition: EMC The apparatus shall comply with the relevant CISPR standards.	Compliance shall be evaluated during national approval.	**N/A**